

ABSTRACT

[0039] The thermo-optic behavior of an optical path over a range of temperatures is controlled by determining a figure of merit (FoM) for the optical path and including in the path a body of $\text{NaBi}(\text{Mo}_{1-x}\text{W}_x\text{O}_4)_2$ crystalline material that enables the conditions specified by the FOM to be satisfied. The $\text{NaBi}(\text{Mo}_{1-x}\text{W}_x\text{O}_4)_2$ crystalline material is highly transparent at a wavelength of radiation propagating in the path, and has a coefficient of thermal expansion (CTE) and a refractive index n such that the CTE and dn/dT of the etalon compensate one another so as to perform frequency discrimination that is essentially temperature insensitive over the range ΔT . The $\text{NaBi}(\text{Mo}_{1-x}\text{W}_x\text{O}_4)_2$ crystalline material exhibits temperature independent transmission characteristics at about room temperature and at a wavelength of about 1550nm.